

# 1969

**OPERATING  
SUMMARY**

---

## ***PARRY SOUND***

***water pollution  
control plant***

LIBRARY COPY

MAR 25 1971

ONTARIO WATER  
RESOURCES COMMISSION

LABORATORY LIBRARY  
ONTARIO WATER RESOURCES COMMISSION

ONTARIO WATER RESOURCES COMMISSION

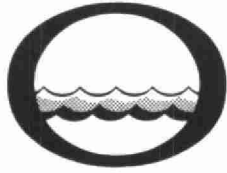
Division of Plant Operations

### Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at [copyright@ontario.ca](mailto:copyright@ontario.ca)



*Water management in Ontario*

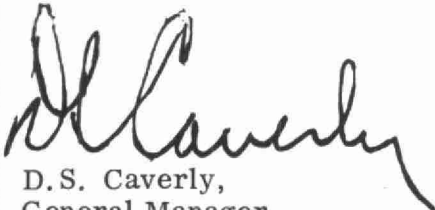
Ontario  
Water Resources  
Commission


135 St. Clair Ave. W.  
Toronto 195  
Ontario

The operating efficiency and financial status of the water pollution control facilities operated for you in 1969 are presented in the following pages.

The regional operations engineer's comments and the statistical data will assist you in gauging the plant's level of performance. A new flow chart and up-to-date design data are also provided.

Various divisions and sections within the Commission have co-operated in providing what we trust is an accurate and concise annual operating summary.

  
D.S. Caverly,  
General Manager.

  
D.A. McTavish, P. Eng.,  
Director,  
Division of Plant Operations.

## **CONTENTS**

Title page. . . . .	1
Flow diagram . . . .	2
Design data . . . . .	3
'69 Review . . . . .	4
Project costs . . . .	6
Process data. . . . .	9

ONTARIO WATER RESOURCES COMMISSION

CHAIRMAN  
D. J. Collins

VICE-CHAIRMAN  
J. H. H. Root, M. P. P.

COMMISSIONERS  
H. E. Brown  
D. A. Moodie  
L. E. Venchiarutti

GENERAL MANAGER  
D. S. Caverly

ASSISTANT GENERAL MANAGERS  
L. E. Owers  
K. H. Sharpe  
F. A. Voegel  
A. K. Watt

COMMISSION SECRETARY  
W. S. MacDonnell

DIVISION OF PLANT OPERATIONS

Director  
D. A. McTavish

Assistant Director  
C. W. Perry

Regional Supervisor  
P. J. Osmond

Operations Engineer  
R. Kauppinen

135 St. Clair Avenue West  
Toronto 7

**PARRY SOUND**  
**water pollution control plant**

operated for

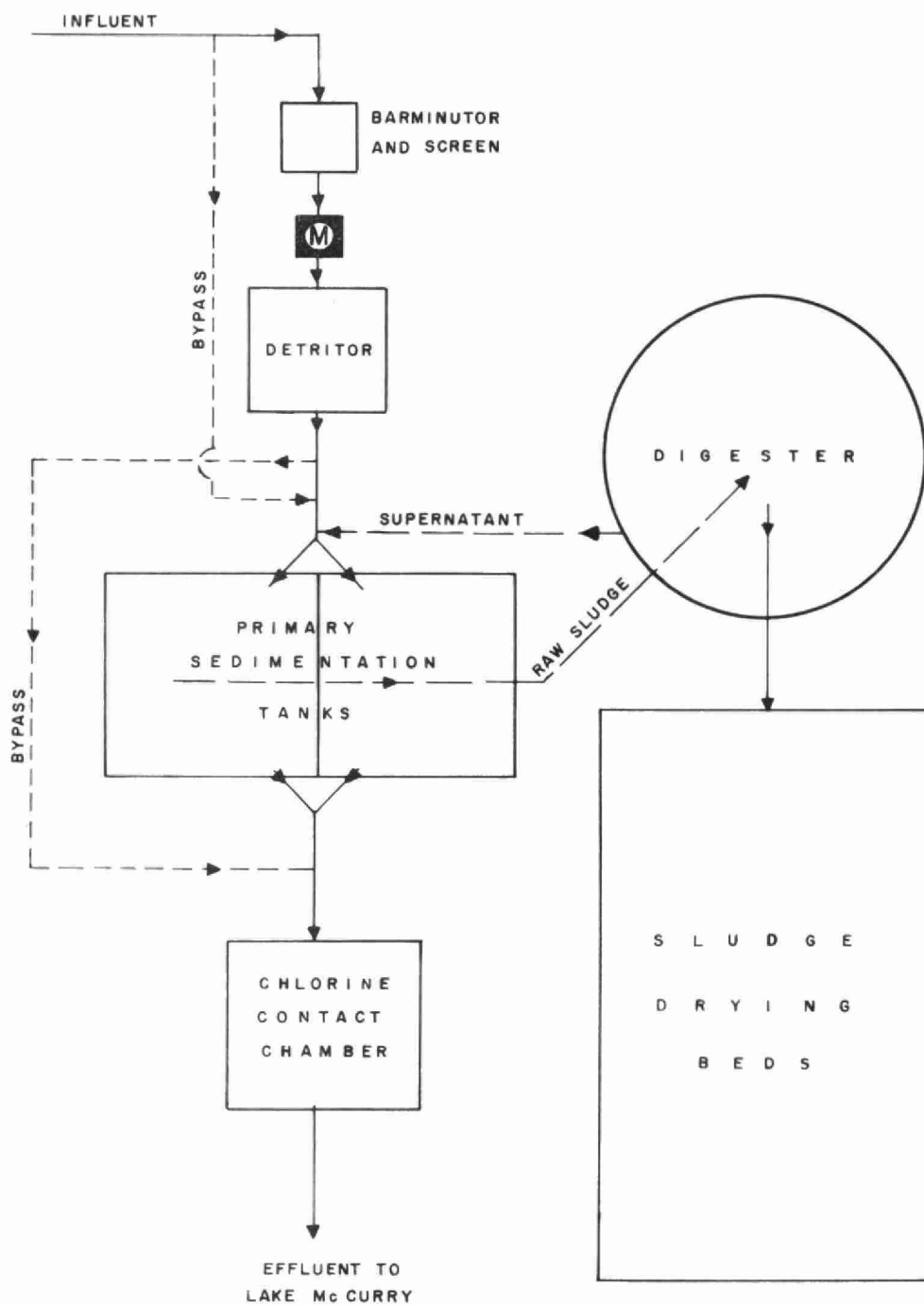
THE TOWN OF PARRY SOUND

by the

ONTARIO WATER RESOURCES COMMISSION

**1969 ANNUAL OPERATING SUMMARY**

# PARRY SOUND WATER POLLUTION CONTROL PLANT



## DESIGN DATA

PROJECT NO.	2-0113-62	TREATMENT	Primary
DESIGN FLOW	0.83 mgd	DESIGN POPULATION	7,500
BOD - Raw Sewage	250 mg/l	SS - Raw Sewage	200 mg/l
- Removal	35%	- Removal	35%

### PRIMARY TREATMENT

#### Comminution

Type: Barminutor  
Size: One Model C (18")

#### Grit Removal

Type: Dorr Detritor  
Size: One 10 X 10 X 1 $\frac{1}{4}$ '  
Retention: 1.35 min

#### Primary Sedimentation

Type: Dorr  
Size: Two 30' x 30' x 10' swd  
(112,000 gallons)  
Retention: 3.24 hr  
Loading: Surface, 460 gal/ft<sup>2</sup>/day  
Weir, 3700 gal/ft/day

### CHLORINATION

Type: W & T, Type A-731  
Size: One 200 lb/day

#### Chlorine Contact Chamber

Size: One 25 $\frac{1}{2}$  X 8 $\frac{1}{2}$  X 8'  
(11,150 gal)  
Retention: 19.2 min

### OUTFALL

- to McCurry Lake

### SLUDGE HANDLING

#### Digestion System - single-stage

Type: Dorr draft tubes (2)  
Size: One 35' dia x 20' 9" swd  
(20,580 cu ft or 138,000 gal)

Loading: 0.85 lb/cu ft/mo

#### Drying Beds

- Four 76 $\frac{1}{2}$  X 29'

### PUMPING STATIONS

#### #2 Ejector Station

Type: Smith & Loveless  
Size: One 100 gpm @ 135' tdh

#### #1 Pumping Station

Type: Flygt  
Size: Two 40 gpm @ 26' tdh

#### #7 Pumping Station (Bay St.)

Type: Flygt  
Size: One 40 gpm @ 35' tdh

#### #3 Pumping Station (Hawthorn Cr.)

Type: Flygt  
Size: One 50 gpm

#### #4 Pumping Station (William St.)

Type: Flygt  
Size: Two 250 gpm @ 36' tdh

#### #5 Pumping Station (Cascade St.)

Type: Robert Morse (Weinman)  
Size: Two 420 gpm @ 41' tdh

#### #6 Pumping Station

Type: Robert Morse  
Size: Two 860 gpm @ 150' tdh

# '69 **REVIEW**

## GENERAL

The project comprises a primary treatment plant with a design capacity of 830,000 gallons a day, and nine sewage lift stations (two of these Town-owned). A two-man staff operates the project.

The plant effluent discharges eventually to Georgian Bay, via McCurry Lake and McCurry Creek. The Creek was the site of odour and foam problems, and an attempt was made to control odour by use of chemicals.

Meetings between the OWRC and the Town discussed the need for secondary treatment and for an outfall pipe from McCurry Lake to Georgian Bay. A proposal to allow provincial ownership of the treatment facilities was also discussed, but no final decisions were reached on these matters in 1969.

## EXPENDITURES

The total operating cost for the year was \$33,021.33. The cost per million gallons treated was \$126.66, which compares with the 1967 unit cost but is lower than the unit cost for 1968, when the flow was lower.

## PLANT FLOWS and CHLORINATION

A total of 260.70 million gallons was treated in 1969, representing an average daily flow of 700,000 gallons. The average design flow of 830,000 gallons per day was exceeded approximately 23 percent of the time. The plant has a maximum hydraulic capacity of 2.5 mgd.



The plant effluent was chlorinated throughout the year and a total of 20,690 pounds of chlorine was used at an average dosage of 7.9 milligrams per litre.

#### PLANT EFFICIENCY

The raw sewage had an average concentration of 97 mg/l BOD and 136 mg/l suspended solids compared with 124 and 189 mg/l in 1968.

The final effluent had an average concentration of 54 mg/l BOD and 37 mg/l suspended solids. This indicated reductions of 44% in BOD and 73 % in suspended solids, which is satisfactory for a primary treatment plant.

A total of 1255 cubic feet of grit was removed for an average of 4.7 cubic feet per million gallons treated. This amount of grit indicates severe occurrences of storm water and/or infiltration in the collection system. This problem is further emphasized by the relatively weak raw sewage received.

#### SLUDGE DIGESTION and DISPOSAL

A total of 167,700 gallons of raw sludge was pumped to the digester in 1969 and 86,000 gallons of digested sludge was removed from the digester.

The raw sludge had an average concentration of 5.2% total solids of which 62% was volatile matter. The digested sludge had an average concentration of 10.6% total solids of which 38% was volatile matter. The supernatant had an average concentration of 0.4% solids. The digested sludge was disposed on sludge drying beds.

### **CONCLUSIONS**

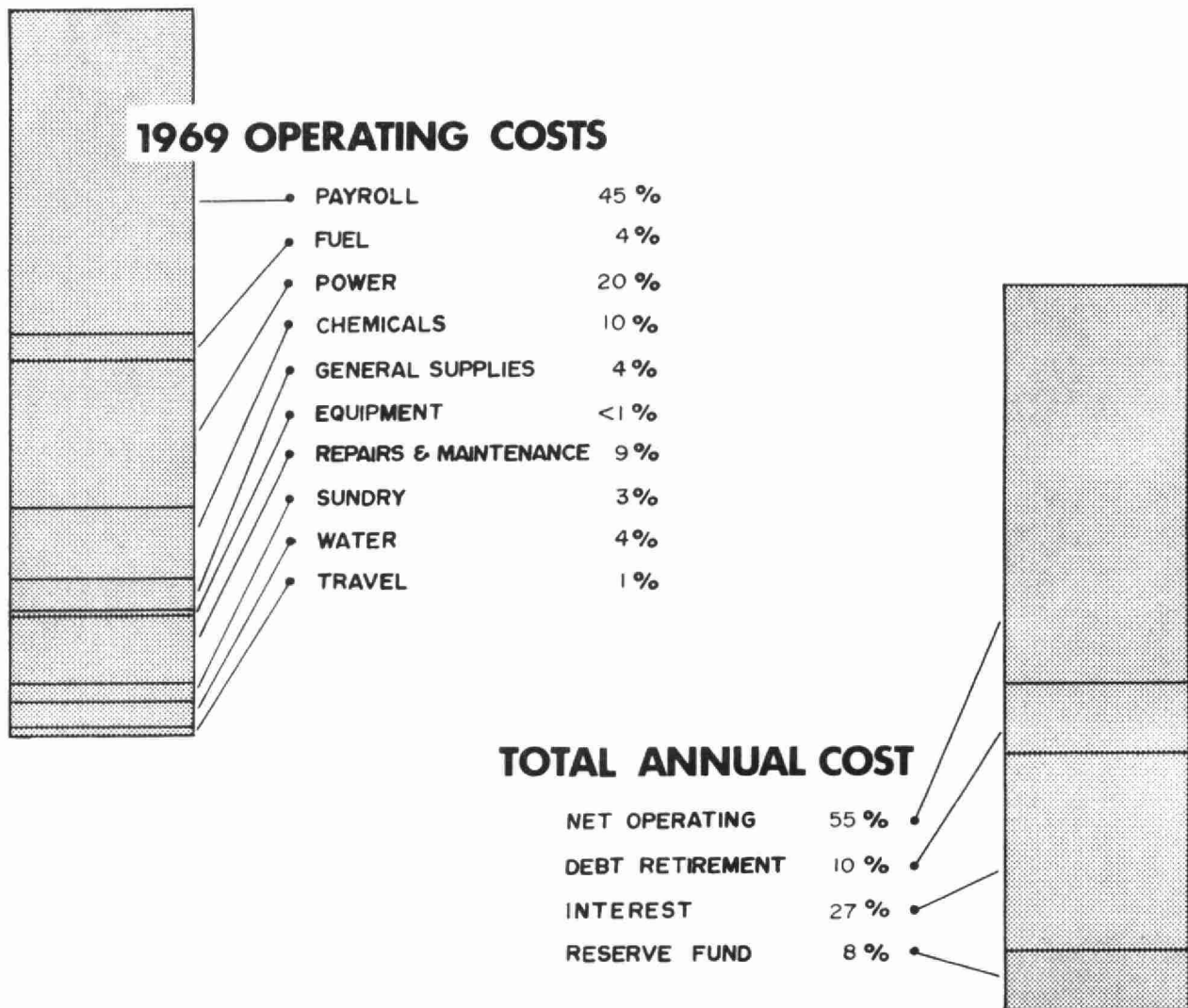
The project was well operated and maintained and provided good primary treatment.

## PROJECT COSTS

NET CAPITAL COST (Est.)	\$840,695.83
DEDUCT - Portion financed by CMHC/MDLB (Est.)	<u>549,696.21</u>
Long Term Debt to OWRC	<u>\$290,999.62</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1969	<u>\$ 28,631.56</u>
Net Operating	\$ 33,021.33
Debt Retirement	5,865.00
Reserve	1,447.48
Interest Charged	<u>16,219.55</u>
TOTAL	<u>\$ 59,553.36</u>

### RESERVE ACCOUNT

Balance @ January 1, 1969	\$ 17,876.11
Deposited by Municipality	4,447.48
Interest Earned	<u>904.84</u>
	\$ 23,228.43
Less Expenditures	<u>3,635.96</u>
Balance @ December 31, 1969	<u>\$ 19,592.47</u>



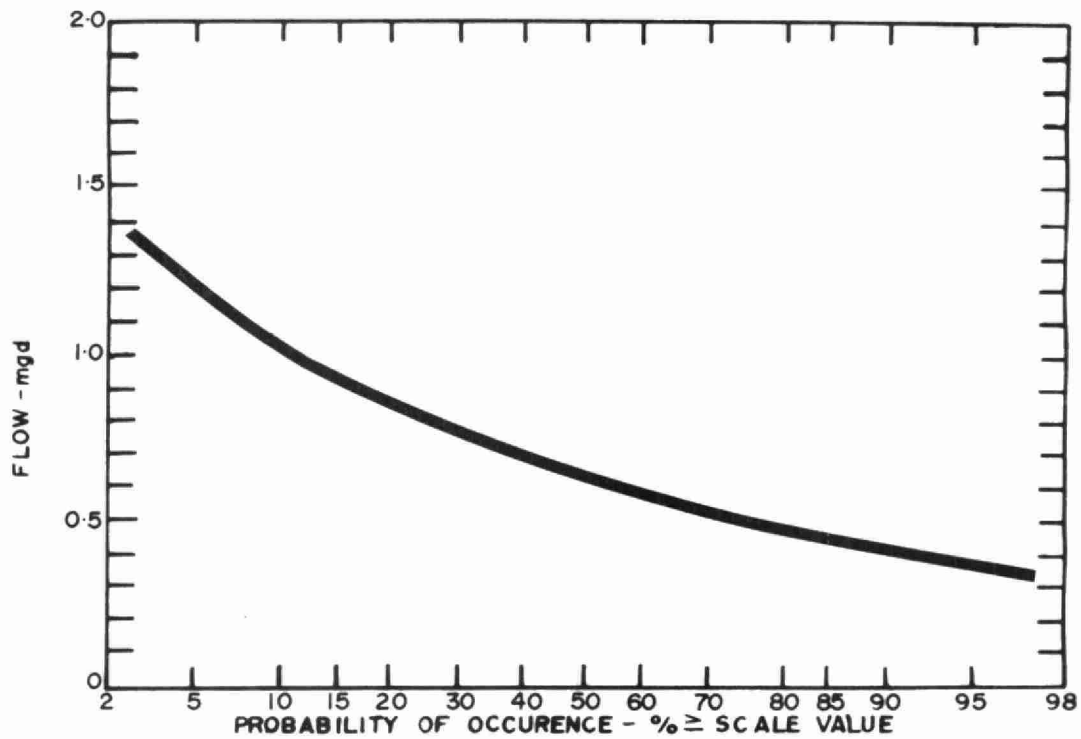
### Yearly Operating Costs

YEAR	MILLION GALLONS TREATED	TOTAL OPERATING COSTS	COST PER MILLION GAL	COST PER LB OF BOD REMOVED
1966	231.646	\$25,281.98	\$109.14	23 cents
1967	234.338	29,843.67	127.35	24 cents
1968	198.76	32,277.42	162.39	28 cents
1969	260.7	33,021.33	126.66	29 cents

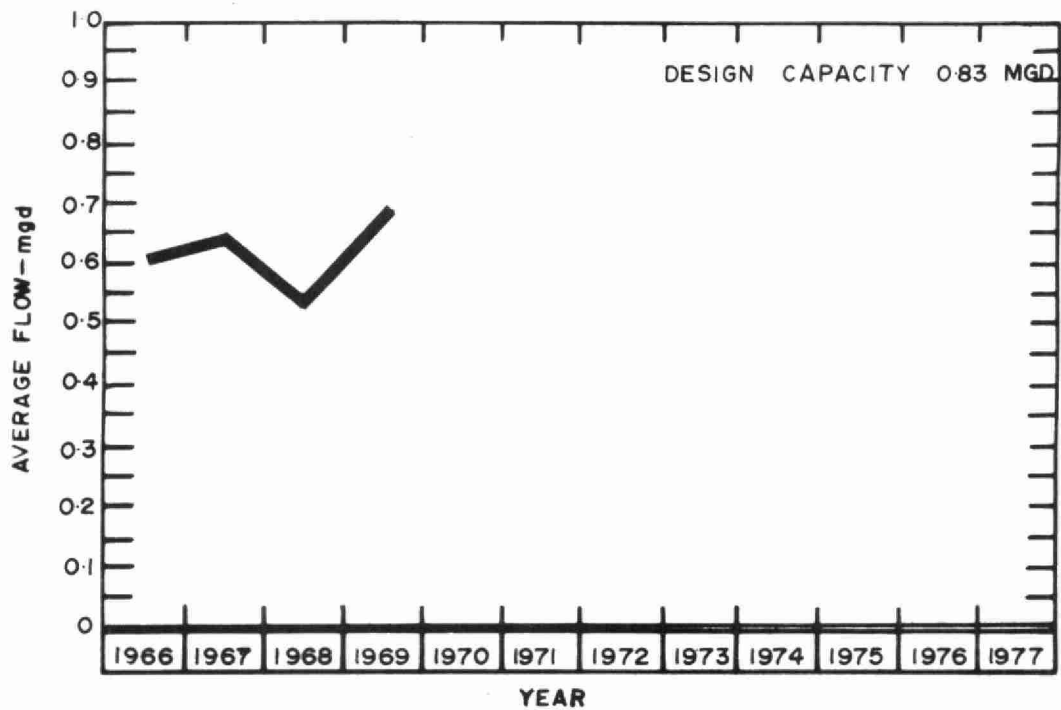
## Monthly Operating Costs

MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICALS	GENERAL SUPPLIES	EQUIPMENT	REPAIRS and MAINTENANCE	SUNDRY	WATER	TRAVEL
JAN	2115.37	1702.90	-	-	194.13	-	-	-	50.13	47.82	120.39	-
FEB	2205.18	1033.15	-	-	598.32	-	106.89	-	379.04	8.40	79.38	-
MAR	2802.10	1008.64	-	235.67	593.31	477.23	110.71	-	126.50	58.29	191.82	-
APR	3060.06	1206.08	-	235.53	528.23	852.87	113.23	-	16.60	16.18	91.34	-
MAY	2018.99	1207.86	-	-	173.94	-	70.37	-	392.76	76.54	97.52	-
JUNE	3382.79	1097.56	-	235.94	914.22	441.00	227.04	-	297.79	74.65	94.59	-
JULY	2274.44	1078.94	164.66	-	526.28	-	98.19	-	250.41	13.65	142.31	-
AUG	2879.48	1569.51	314.10	-	475.64	119.31	65.45	-	313.54	15.27	6.66	-
SEPT	3480.65	1233.04	-	31.89	570.50	835.15	200.93	-	396.79	18.36	193.99	-
OCT	2291.01	1037.83	-	267.64	555.44	-	139.99	-	113.70	16.49	92.95	66.97
NOV	2859.82	1071.98	-	-	563.93	477.23	109.40	-	400.06	125.02	112.20	-
DEC	3651.44	1129.50	-	265.52	1039.12	-	184.09	152.63	88.30	517.38	149.65	125.25
TOTAL	33021.33	14376.99	478.76	1272.19	6733.06	3202.79	1426.29	152.63	2825.62	987.98	1372.80	192.22

**PROCESS DATA**

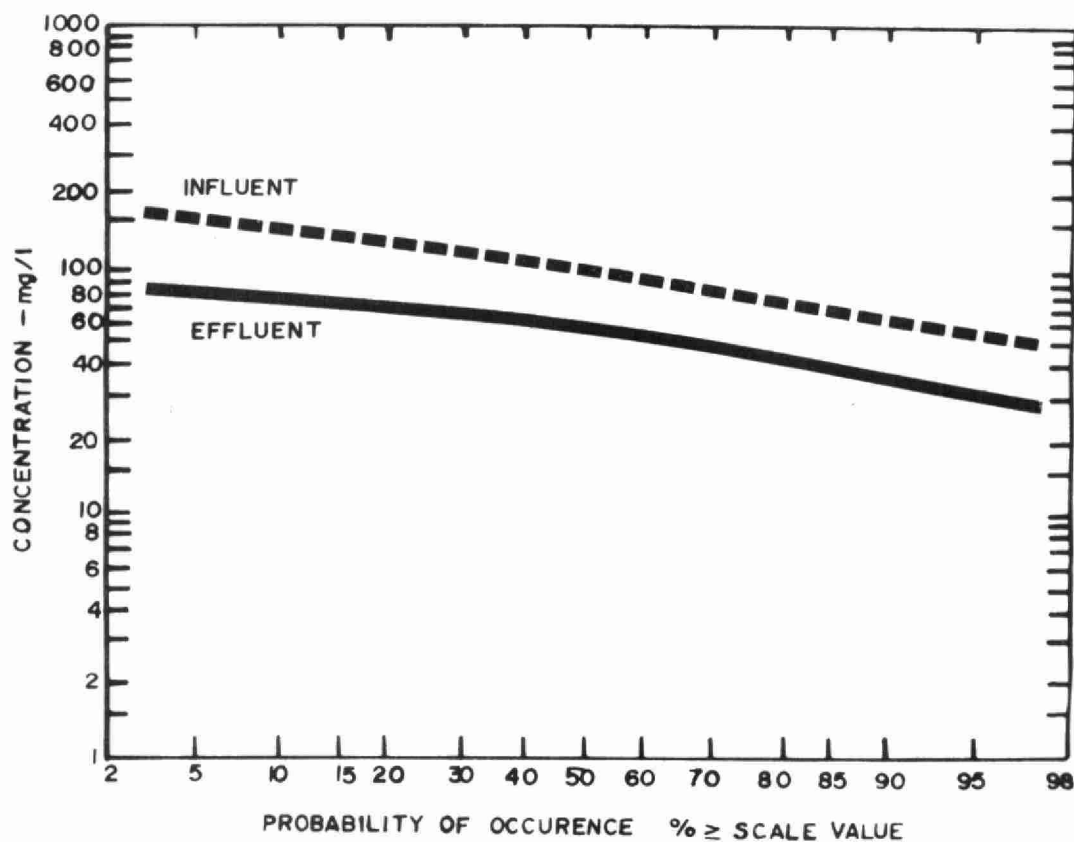


## **FL O W S**

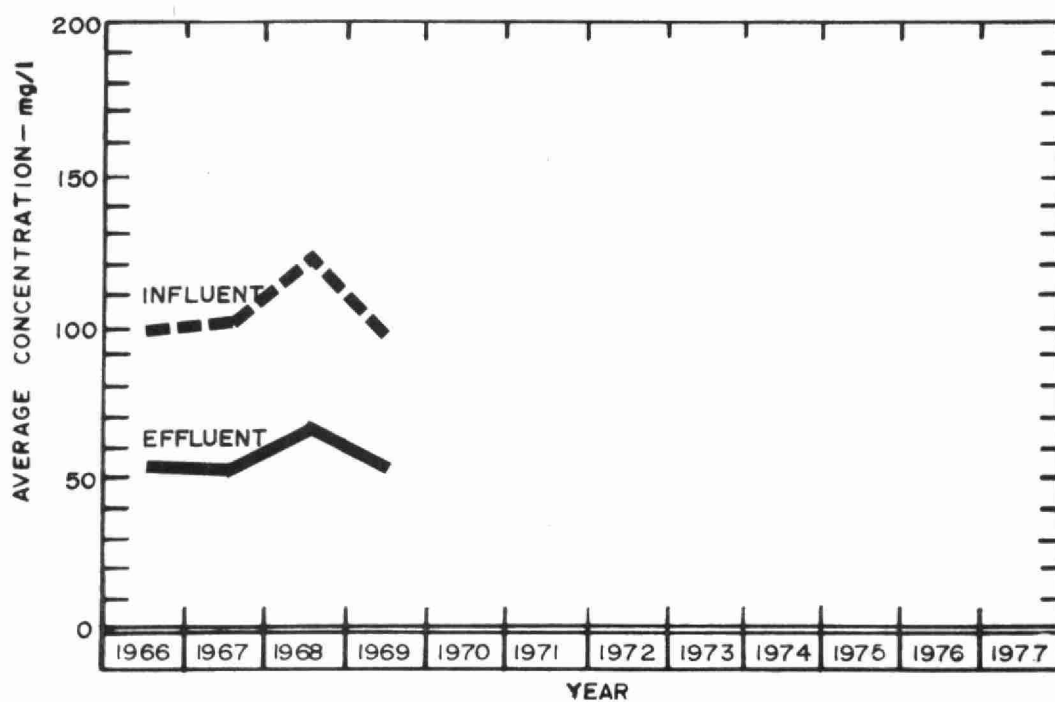


## PLANT FLOWS and CHLORINATION

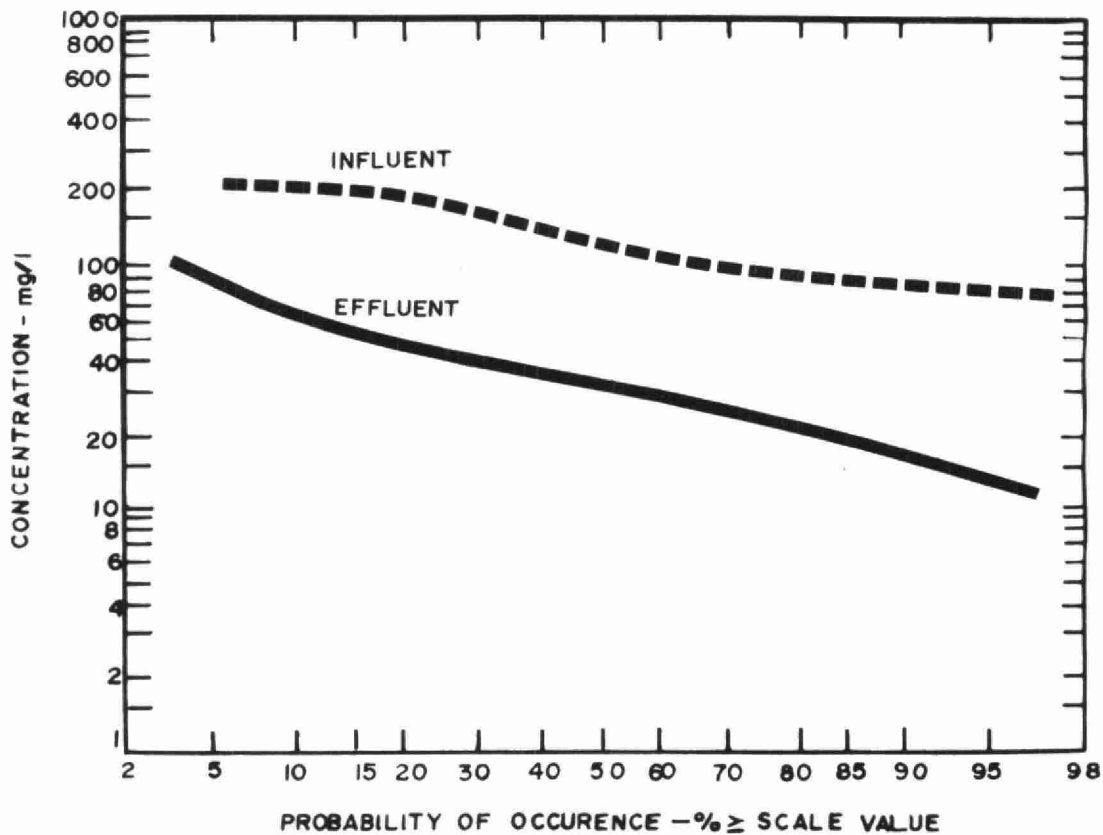
MONTH	TOTAL FLOW mil gal	AVERAGE DAILY FLOW mil gal	MAXIMUM DAILY FLOW mil gal	MINIMUM DAILY FLOW mil gal	CHLORINE USED 10 <sup>3</sup> pounds	DOSAGE mg/l
JAN	14.0	.45	1.16	.33	1.80	12.9
FEB	13.7	.48	.54	.45	1.59	11.6
MAR	21.9	.71	1.42	.45	1.73	7.9
APR	25.4	.85	1.15	.69	1.70	6.7
MAY	26.5	.85	1.89	.54	1.76	6.6
JUNE	17.1	.57	1.26	.43	1.72	10.1
JULY	16.3	.52	.98	.40	1.75	10.7
AUG	21.5	.69	1.05	.58	1.76	8.2
SEPT	18.3	.61	.98	.52	1.72	9.4
OCT	23.4	.75	1.36	.52	1.77	7.6
NOV	36.2	1.10	2.16	.64	1.69	4.7
DEC	26.4	.85	1.13	.75	1.70	6.5
TOTAL	260.7	-	-	-	20.69	-
AVERAGE	-	.70	-	-	1.72	7.9



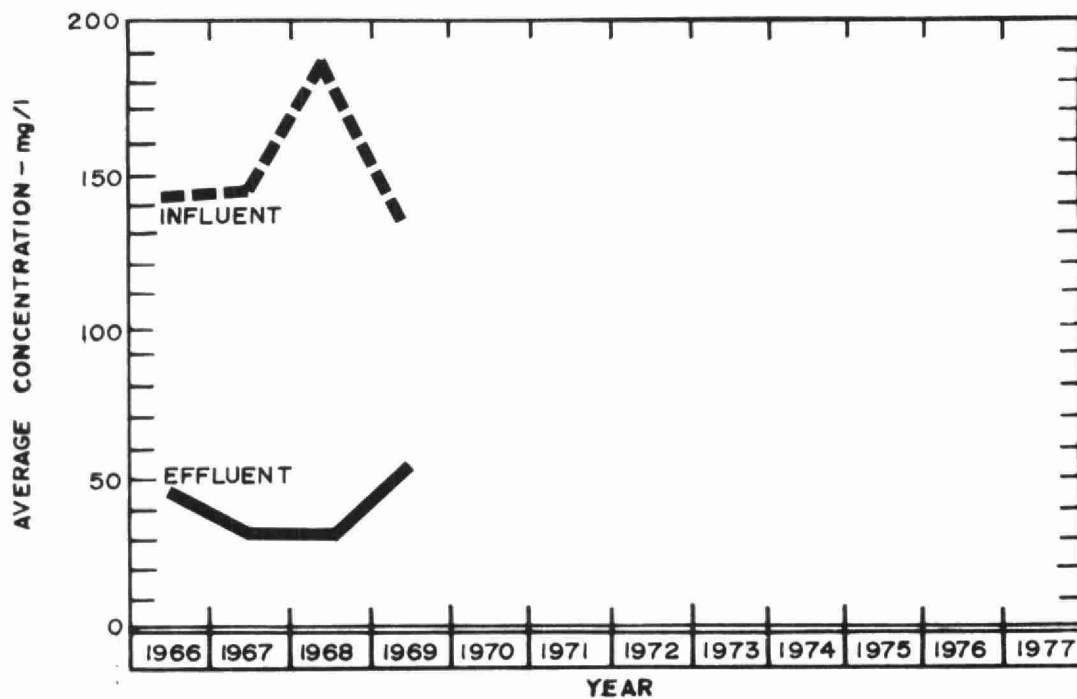
## BIOCHEMICAL OXYGEN DEMAND





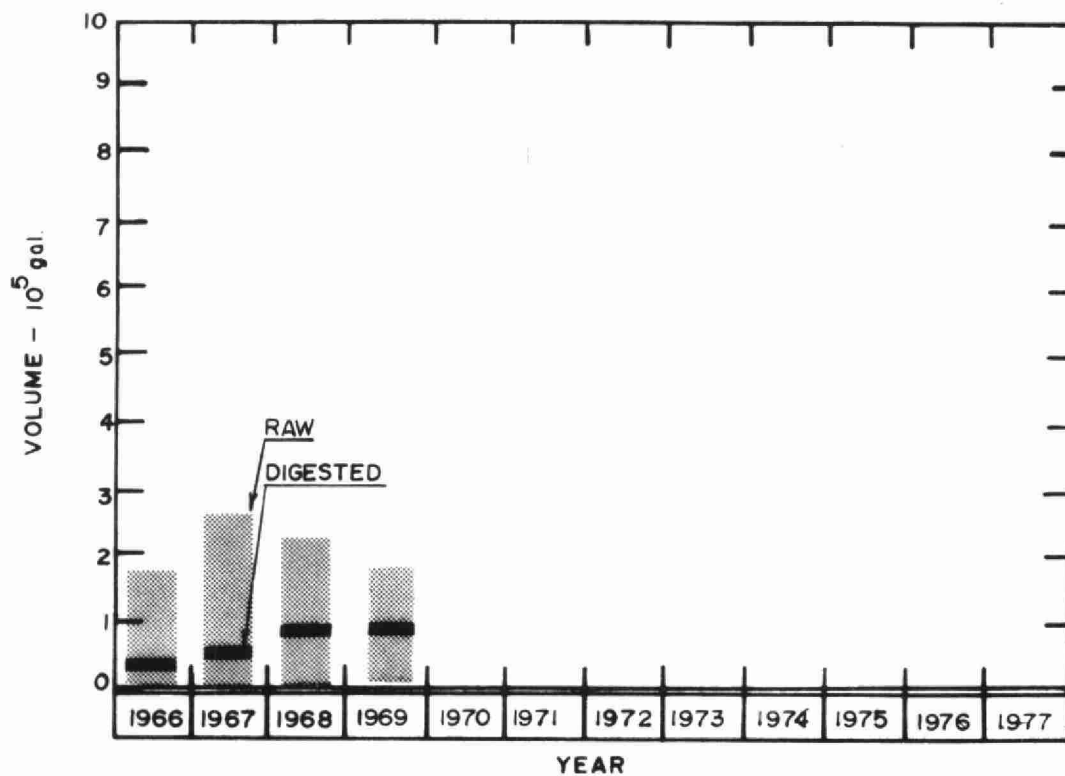


## SUSPENDED SOLIDS

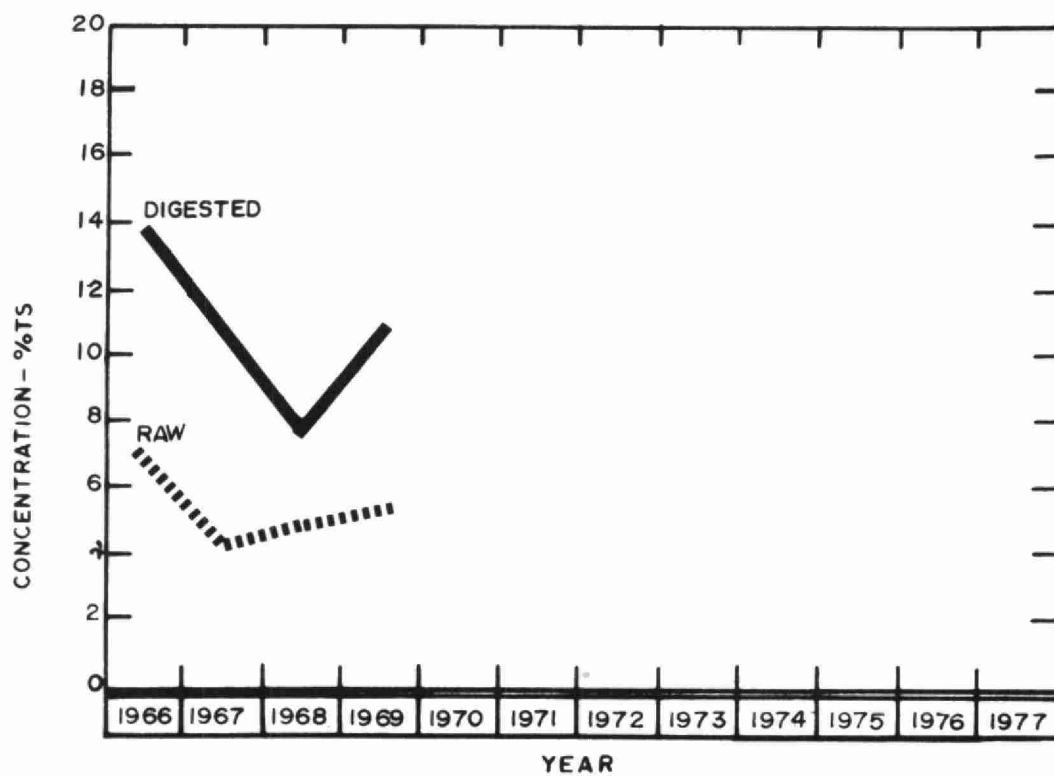


## PLANT EFFICIENCY

MONTH	BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				GRIT REMOVAL
	INF.	EFF.	REDUCTION		INF.	EFF.	REDUCTION		
	mg/l	mg/l	%	10 <sup>3</sup> pounds	mg/l	mg/l	%	10 <sup>3</sup> pounds	cu ft
JAN	105	65	38	5.6	140	45	68	13.2	55
FEB	107	60	44	6.4	165	35	79	17.7	21
MAR	120	50	58	15.3	135	30	78	23.0	135
APR	70	44	37	6.6	95	20	79	19.1	111
MAY	93	52	44	10.8	195	60	69	35.7	187
JUNE	115	60	48	9.4	145	27	82	20.2	66
JULY	105	70	33	5.7	150	33	78	19.0	75
AUG	85	41	52	9.5	112	35	69	16.6	158
SEPT	130	63	52	12.3	170	75	56	17.4	72
OCT	65	38	42	6.3	100	15	85	19.9	139
NOV	61	42	31	6.9	95	30	68	23.5	212
DEC	110	64	42	12.1	130	35	73	25.0	24
TOTAL	-	-	-	-	-	-	-	-	1255
AVERAGE	97	54	44	8.9	136	37	73	20.9	104



## DIGESTION



## SLUDGE DIGESTION and DISPOSAL

MONTH	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT		SLUDGE DISPOSAL	
	VOLUME	TOTAL SOLIDS	VOL SOLIDS	VOLUME	TOTAL SOLIDS	VOL SOLIDS	VOLUME	TOTAL SOLIDS	DEWATERED	LIQUID
	10 <sup>3</sup> gal	%	%	10 <sup>3</sup> gal	%	%	10 gal	%	CU FT	CU YD
JAN	16.3	2.4	65	9.5	11.7	26	-	.3	0	0
FEB	13.9	3.8	83	7.5	15.5	30	-	.4	0	0
MAR	14.0	4.4	60	10.5	10.6	55	-	.5	0	0
APR	14.6	5.2	53	7.5	16.3	28	-	.3	0	0
MAY	13.2	6.0	58	4.0	9.8	37	-	-	0	0
JUNE	12.5	5.9	59	8.0	9.8	39	-	-	0	0
JULY	13.9	5.8	59	7.0	9.8	68	-	.4	0	0
AUG	13.9	5.4	53	8.0	4.2	44	-	-	445	0
SEPT	13.8	7.6	69	9.5	10.2	34	-	.3	0	0
OCT	14.1	5.4	69	4.0	10.3	30	-	-	0	0
NOV	13.4	6.5	53	7.5	11.9	55	-	.6	0	0
DEC	14.1	5.0	62	3.0	6.9	21	-	.2	0	0
TOTAL	167.7	-	-	86.0	-	-	-	-	445	0
AVERAGE	1.40	5.2	62	7.2	10.6	38	-	.4	-	-



Date Due

[illegible]



*Water management in Ontario*